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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/502,425

01/25/2005

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033339/280963

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02/01/2011

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EXAMINER

SAUNDERS JR, JOSEPH

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

02/01/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/502,425

Applicant(s)

JOLY, ALEXANDRE

Examiner

Joseph Saunders

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-45 is/are pending in the application.
- 4a) Of the above claim(s) 25-28 and 34-42 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-33 is/are allowed.
- 6) ☒ Claim(s) 24 and 43-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No.(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office action is in response to the communications filed November 16, 2010. Claims 24 – 45 are currently pending, claims 25 – 28 and 34 – 42 are withdrawn from further consideration, and claims 24, 29 – 33, and 43 – 45 are considered below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 24 and 43 – 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Srinivasan (WO 01/31816 A1), hereinafter Srinivasan.

Claim 24: Srinivasan discloses a method of qualitatively evaluating a digital audio signal ("Audio Quality Measure (AQM)," page 53 lines 16 – page 57 line 15), comprising:

calculating, using a measuring system ("an audibility score, which is designated herein as the audio quality measure (AQM), can be computed in order to determine when instances of potentially audible code segments occur"), in real time, in continuous time, and in successive time windows ("Let it be assumed that blocks of 512 samples at a 48 kHz sampling rate are used to compute the AQM," and "blocks are grouped consecutively in a sequence") a quality indicator wherein:

said quality indicator is obtained from said digital audio signal that represents an analog audio signal ("AQM computation may be based on psycho-acoustic models that are widely used in audio compression algorithms such as Dolby's AC-3, MPEG-2 Layers I, II, or III, or MPEG-AAC. The AQM computation discussed below is based on MPEG-AAC. However, the AQM computation may be based any of these audio compression algorithms. (For example, in the Dolby AC-3 audio compression method, a Modified Discrete Cosine Transform (MDCT) spectrum is used for computing the masking levels"),

said quality indicator is associated with each of said time windows ("The total AQM score for the whole block can be obtained at the step 56 from equation (19) by summing across all 42 critical bands according to the following equation:" (20)), and

said quality indicator comprises a number of elements which is at least one hundred times less than the number of audio samples in a time window, said number being from 1 to 10 (AQM_{TOTAL} , see equation 20); and

directly estimating quality of said digital audio signal as a function of said quality indicator ("If it is determined at the step 56 that AQM_{TOTAL} is greater than a predetermined threshold AQM_{THRESH} , then the corresponding block is not considered to be suitable for encoding").

Claim 43: Srinivasan discloses a method according to claim 24, wherein the digital audio signal to be evaluated is an audio signal transmitted digitally ("Audio signals are usually digitized at sampling rates that range between thirty-two kHz and forty-eight

kHz. For example, a sampling rate of 44.1 kHz is commonly used during the digital recording of music. However, digital television ("DTV") is likely to use a forty eight kHz sampling rate," page 13 lines 1 – 7, and transmitter/receiver, Figure 1)

Claim 44: Srinivasan discloses a method according to claim 24, wherein the digital audio signal has had digital coding applied ("Compression of audio signals is performed in order to reduce this data rate to a level which makes it possible to transmit a stereo pair of such data on a channel with a throughput as low as 192 kbits/s," page 13 lines 20 – 23).

Claim 45: Srinivasan discloses a method according to claim 44, wherein said digital coding is bit rate reduction coding ("Compression of audio signals is performed in order to reduce this data rate to a level which makes it possible to transmit a stereo pair of such data on a channel with a throughput as low as 192 kbits/s," page 13 lines 20 – 23).

Allowable Subject Matter

4. Claims 29 – 33 are allowed.

Response to Arguments

5. It is noted that Applicant has recognized an unintentional error on the Examiners part in that the Srinivasan US 7,006,555 is not prior art under 102(b) but 102(e), however the Examiner had intended to cite the equivalent document WO 01/31816 A1

to Srinivasan which is prior art under 102(b) as of the publication date May 3, 2001.

Given the cited sections are also present in WO 01/31816 A1 and that the argument at hand is whether or not Srinivasan anticipates Applicant's claim 24 the following arguments still pertain.

6. Applicant's arguments filed November 17, 2010 have been fully considered but they are not persuasive. Applicant argues, "Although AQM is an acronym for "Audio Quality Measure" in Srinivasan, AQM_{TOTAL} is not associated to the quality of an audio signal. To the contrary, AQM_{TOTAL} is associated with an audio signal's suitability for encoding. An audio signal can be suitable or unsuitable for encoding independent from the audio signal's quality. For at least this reason, Srinivasan is fundamentally different from that recited by Claim 24," page 12 of Applicant's remarks. In response, whether or not an audio signal can be suitable for encoding independent of the audio signal's quality is irrelevant since the matter at hand is whether or not AQM_{TOTAL} is an audio quality measure. Given that Applicant acknowledges that AQM stands for Audio Quality Measure the Examiner reasserts that AQM_{TOTAL} is not only associated to the quality of an audio signal AQM_{TOTAL} is the measure of the quality of an audio signal. Therefore, in reference to the Applicant's remarks an audio signal's suitability for encoding is based on the Audio Quality Measure AQM_{TOTAL} . Further, Applicant's claimed limitation of "directly estimating quality of said digital audio signal as a function of said quality indicator," is taught by Srinivasan in that, the quality of said digital audio signal is directly estimating as a function of said quality indicator AQM_{TOTAL} since if audibility score or audio quality measure AQM_{TOTAL} is greater than AQM_{THRESH} then instances of

potentially audible code segments occur. Further Applicant goes on to argue how AQM_{TOTAL} pertains to un-coded and encoded signals however these arguments are again moot since again the issue at hand is whether or not AQM is and Audio Quality Measure and it is clear that it AQM is an audio quality measure. Applicant also acknowledges that spectral energy $E_c[b]$ is considered analogous to the elements of the quality indicator of claim 24, however incorrectly states that $E_c[b]$ comprises a number of elements which are much higher than 10, and is not 100 times less than the number of audio samples in the time window, since Applicant incorrectly references the number of critical bands 42 and not the number of samples in the time window 512. Further since $E_c[b]$ as acknowledged by Applicant is analogous to the claimed limitation, AQM_{TOTAL} which is the summation of the ratio of the change in spectral energy to the masking energy level must also be analogous, and in this case meets the claimed limitation since the time window is 512 samples and AQM_{TOTAL} is a single value and therefore less than 10 and 100 times smaller than the number of samples in the time window.

Finally, Applicant argues that Srinivasan fails to show or otherwise suggest real time evaluation. The definition of real-time is as follows:

real-time

1. Describes an application which requires a program to respond to stimuli within some small upper limit of response time (typically milli- or microseconds). Process control at a

chemical plant is the classic example. Such applications often require special operating systems (because everything else must take a back seat to response time) and speed-tuned hardware.

2. In jargon, refers to doing something while people are watching or waiting. "I asked her how to find the calling procedure's program counter on the stack and she came up with an algorithm in real time."

Used to describe a system that must guarantee a response to an external event within a given time.

Therefore, the Examiner respectfully disagrees that Srinivasan fails to disclose real-time since Srinivasan states in the section Delay Compensation that "It is clear that a sample arriving at the input suffers a delay equivalent to the time duration required to fill two buffers at the sampling rate of 48 kHz before its encoded version appears at the output. This delay is approximately 22 ms," and further explains "When the encoder 12 is used in a television system environment, it is necessary to compensate for this delay in order to maintain synchronization between video and audio". Therefore, the invention of Srinivasan is real-time since it responds to stimuli within some small upper limit of response time (typically milli- or microseconds), i.e., 22 ms, and does something while people are watching or waiting, i.e., after initial delay of 22ms the invention maintains synchronization between video and audio in the television environment. Since it is

believed that all of Applicants arguments have been addressed and the rejection deemed proper, the rejection is maintained.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 2614